We Claim:

1. An anti-myostatin monoclonal antibody comprising two polypeptides with the sequences shown in the group consisting of:

(i) SEQ ID NOs: 3 and 12,
(ii) SEQ ID NOs: 4 and 13,
(iii) SEQ ID NOs: 3 and 14,
(iv) SEQ ID NOs: 5 and 12,
(v) SEQ ID NOs: 6 and 15,
(vi) SEQ ID NOs: 7 and 17,
(vii) SEQ ID NOs: 8 and 12,
(viii) SEQ ID NOs: 9 and 16,
(ix) SEQ ID NOs: 10 and 12, and
(x) SEQ ID NOs: 11 and 12.

2. An anti-myostatin monoclonal antibody comprising a LCVR comprising 1, 2 or 3 peptides selected from the group consisting of (i) a peptide at CDR1 with a sequence as shown in SEQ ID NO: 38, (ii) a peptide at CDR2 with a sequence as shown in SEQ ID NO: 23, and (iii) a peptide at CDR3 with a sequence as shown in SEQ ID NO: 56.

3. An anti-myostatin monoclonal antibody comprising a HCVR comprising 1, 2 or 3 peptides selected from the group consisting of (i) a peptide at CDR1 with a sequence as shown in SEQ ID NO: 55, (ii) a peptide at CDR2 with a sequence as shown in SEQ ID NO: 41, and (iii) a peptide at CDR3 with a sequence as shown in SEQ ID NO: 42.

4. The monoclonal antibody of claim 3, further comprising a LCVR comprising 1, 2 or 3 peptides selected from the group consisting of (i) a peptide at CDR1 with a sequence as shown in SEQ ID NO: 38, (ii) a peptide at CDR2 with a sequence as shown in SEQ ID NO: 23, and (iii) a peptide at CDR3 with a sequence as shown in SEQ ID NO: 56.

5. The monoclonal antibody of any of claims 1-4, wherein the LCVR comprises 1, 2 or 3 peptides selected from the group consisting of (i) a peptide at LCVR CDR1 with a sequence as shown in SEQ ID NO: 18, 19, 20, 21 or 22; (ii) a peptide at LCVR CDR2 with a sequence as shown in SEQ ID NO: 23; and (iii) a peptide at LCVR CDR3 with a sequence as shown in SEQ ID NO: 24, 25, 26, 27 or 28.

6. The monoclonal antibody of any of claims 1-5 wherein the HCVR comprises 1, 2 or 3 peptides selected from the group consisting of (i) a peptide at HCVR CDR1 with a sequence as shown in SEQ ID NO: 29, 30, 31, 47, 48, 49, 50, 51, 52, 53 or 54; (ii) a peptide at HCVR CDR2 with a sequence as shown in SEQ ID NO: 32, 33, 34 or 35; and (iii) a peptide at HCVR CDR3 with a sequence as shown in SEQ ID NO: 36 or 37.

7. The monoclonal antibody of any of claims 1-6 wherein the monoclonal antibody is a full-length antibody, a substantially intact antibody, a chimeric antibody, a Fab fragment, a $F(ab')_2$ fragment or a single chain Fv fragment.

8. The monoclonal antibody of any of claims 1-7 wherein the monoclonal antibody is a humanized antibody.

9. The monoclonal antibody of any of Claims 1-6 wherein the constant region present in the antibody originates from the genome of an animal selected from the group consisting of domestic animals, sports animals and food-source animals.

10. The process of producing an anti-myostatin monoclonal antibody by
(i) immunizing a non-human animal by injecting with a peptide selected from the group consisting of:
    a) an immunogenic peptide consisting of a peptide with a sequence as shown in SEQ ID NO: 46 or 43,
    b) an immunogenic peptide consisting of 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6 or 5 contiguous amino acids of the peptide with the sequence as shown in SEQ ID NO:

46 or 43, wherein at least one amino acid differs from that in GDF-11 at the equivalent position,

c) an immunogenic peptide consisting of amino acids 40-64 of mature myostatin of any mammal,

d) an immunogenic peptide consisting of 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6 or 5 contiguous amino acids of the peptide consisting of amino acids 40-64 of mature myostatin of any mammal, wherein at least one amino acid differs from that in GDF-11 at the equivalent position,

(ii) generating anti-myostatin monoclonal antibodies from the immunized animal, and,

(iii) screening the anti-myostatin monoclonal antibodies generated for antibodies that specifically bind mature myostatin, or a portion thereof comprising the immunogenic peptide, or the immunogenic peptide.

11. The monoclonal antibody produced by the process of Claim 10.

12. The process of producing an anti-myostatin monoclonal antibody by

(i) immunizing a non-human animal by injecting with a peptide selected from the group consisting of:

a) an immunogenic peptide comprising a peptide with a sequence as shown in SEQ ID NO: 46 or 43,

b) an immunogenic peptide comprising of 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6 or 5 contiguous amino acids of the peptide with the sequence as shown in SEQ ID NO: 46 or 43, wherein at least one amino acid differs from that in GDF-11 at the equivalent position,

c) an immunogenic peptide comprising amino acids 40-64 of mature myostatin of any mammal, and

d) an immunogenic peptide comprising 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6 or 5 contiguous amino acids of the peptide consisting of amino acids 40-64 of mature

myostatin of any mammal, wherein at least one amino acid differs from that in GDF-11 at the equivalent position,

(ii) generating anti-myostatin monoclonal antibodies from the immunized animal, and,

(iii) screening the anti-myostatin monoclonal antibodies generated for antibodies that specifically bind a peptide selected from the group consisting of:

a) an antigenic peptide consisting of a peptide with a sequence as show in SEQ ID NO: 46 or 43,

b) an antigenic peptide consisting of 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6 or 5 contiguous amino acids of a peptide with the sequence shown in SEQ ID NO: 46 or 43, wherein at least one amino acid differs from that in GDF-11 at the equivalent position,

c) an antigenic peptide consisting of the amino acids at positions 40-64 of the mature form of myostatin of any mammal, and

d) an antigenic peptide consisting of 24, 23, 22, 21, 20, 19, 18, 17, 16, 15, 14, 13, 12, 11, 10, 9, 8, 7, 6 or 5 contiguous amino acids of a peptide consisting of the amino acids at positions 40-64 of the mature form of myostatin of any mammal, wherein at least one amino acid differs from that in GDF-11 at the equivalent position.

13. The monoclonal antibody produced by the process of claim 12.

14. A pharmaceutical composition comprising the antibody of any one of claims 1-9, 11 and 13.

15. The pharmaceutical composition of claim 14 further comprising a pharmaceutically acceptable carrier.

16. A method of increasing muscle mass comprising administering to a subject in need thereof a therapeutically effective amount of the pharmaceutical composition of any one of claims 14-15.

17. A method of treating or preventing frailty, cachexia, muscle wasting, muscle weakness, myopathy, muscular dystrophy, osteoporosis, COPD, renal failure or disease, liver failure or disease, cardiac failure, type II diabetes or metabolic syndrome by administering to a subject in need thereof a therapeutically effective amount of the pharmaceutical composition of any one of claims 14-15.